REMARKS:

1. CLAIMS

Claims 21, 26 and 34 are amended as indicated in the preceding pages. These amendments are made for purposes of clarity and are not made in response to the outstanding claim rejections.

Claims 1, 2, 4-14, 16-23 and 26-41 are currently pending with claims 1, 4, 10, 17, 21, 26, 32, 33, 34 and 39 being independent claims. Claims 3, 15, 24 and 25 were previously canceled without prejudice or disclaimer.

2. FIRST CLAIM REJECTION

The Examiner rejected claims 1, 2, 4-14, 16-23 and 26-41 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement. *See p. 2 of the Office Action.* The Examiner indicated that he was unable to ascertain from the specification or the drawings what supplies the filter signal 206A shown in FIG. 3A and described at p. 7, line 31 – p. 8, line 1 of the specification.

At p. 7, line 30 – p. 8, line 1, the specification states:

> In accordance with an embodiment of this invention, the output of the amplitude calculation block 204 is applied to a deconvolution processing block 206 that also receives a filter signal 206A.

At p. 8, lines 17-20, the specification states:

> The Filter input 206A conveys a set of N coefficients which are the taps of the filter, such as the N-tap FIR filter. What is filtered by the FIR filter is the raw amplitude profile derived by the searcher.

At p. 9, lines 13-20, the specification states:

> In general, in one hardware embodiment the deconvolution processor block 206 is implemented as an N-tap Finite Impulse Response (FIR) filter 300, shown in Fig. 3B, and in another hardware embodiment shown in Fig. 3C the deconvolution processor block 206 is implemented as an Infinite Impulse Response (IIR) filter 400 (having a number of taps at the numerator and at the denominator). The derivation of the filter taps for either of these embodiments can be performed in a variety of ways. For example, one may generate an inverse filter of the *a-priori* known convolution of the transmit and receive filter.

Based on the above-quoted portions of the specification, it is clear that the filter input 206A provides a set of coefficients to the deconvolution processor block 206. In at least some exemplary embodiments of the invention, the deconvolution processor block 206 is implemented as a filter (e.g., an N-tap Finite Impulse Response filter or an Infinite Impulse Response filter). The set of coefficients provided by the input 206A are the taps of the filter.

It is believed that the exemplary embodiments of the invention, including the usage of the filter input 206A, are described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the exemplary embodiments of the invention. It is requested that the Examiner withdraw the rejection of claims 1, 2, 4-14, 16-23 and 26-41 under 35 U.S.C. §112, first paragraph.

With respect to this first claim rejection under 35 U.S.C. §112, first paragraph, it is further noted that MPEP §2164 states in part:

> The enablement requirement refers to the requirement of 35 U.S.C. 112, first paragraph that the specification describe how to make and how to use the invention. **The invention that one skilled in the art must be enabled to make and use is that defined by the claim(s) of the particular application or**

patent. (emphasis added)

The Examiner failed to identify specific claim language that corresponds to the filter signal 206A shown in FIG. 3A and described at p. 7, line 31 – p. 8, line 1 of the specification. In the absence of any such identification of claim language, the Examiner's first rejection under 35 U.S.C. §112, first paragraph, is traversed as being inadequate, and on the ground that the currently pending claims satisfy the enablement requirement.

3. SECOND CLAIM REJECTION

The Examiner further rejected claims 1, 2, 8, 9, 11, 32 and 35 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement. *See pp. 2-3 of the Office Action.* The Examiner asserted that claim 1 presents two filtering processes (addressing the effects of a transmit filter and the effects of a receive filter) while the specification and FIGS. 1 and 3A-3D only show one filtering process.

At p. 2, lines 2-7, the specification states:

> In general, **the multi-path profile is the result of a convolution of the base station signal with a radio channel, the base station transmit filter and the mobile station receive filter**. That is, a conventional searcher produces the multi-path profile using a convolution of the transmit/receive filters and the radio channel. The Active Set profile generated by the searcher is then used by the controller to assign the fingers to demodulate the incoming CDMA signal. (emphasis added)

At p. 2, line 17 – p. 3, line 5, the specification states:

> This invention relates to searcher technology for a receiver operating in accordance with a CDMA standard, such as cdma2000 or WCDMA. The

invention is relevant to a base station receiver and to a mobile station receiver, although it is described below primarily in the context of a mobile station receiver. **A searcher uses a deconvolution technique to at least partially remove the blurring effect of the transmitter and receiver filters** so that the searcher produces substantially only the radio channel multi-path profile.

In one aspect this invention provides a method to receive a CDMA signal from a radio channel, and the method includes inputting a CDMA signal received through the radio channel to a searcher and processing the received signal in the searcher to obtain a multi-path profile of the radio channel, where processing includes **at least partially removing an effect of at least one of a transmit and a receive filter on the multi-path profile.**

In one embodiment at least partially removing the effect of at least one of the transmit and receive filter on the multi-path profile involves passing the received CDMA signal through an N-tap Finite Impulse Response filter **having a filter characteristic that approximates an inverted amplitude response of the at least one of the transmit and a receive filter**. The filter taps of the FIR filter may be derived in several different manners. (emphasis added)

At p. 3, line 27 – p. 4, line 5, the specification states:

Also disclosed is a method to reduce an amount of data provided to a finger assignment algorithm. The method includes inputting a CDMA signal received through a radio channel to a searcher, and processing the received signal in the searcher to generate output data for the finger assignment algorithm that represents a multi-path profile of the radio channel. Processing includes passing the received CDMA signal through a filter selected to have **a filter characteristic that approximates an inverted response of at least one of a base station transmit filter and at least one mobile station receive filter** so as

to reduce an occurrence of multi-path sidelobes in the output data. (emphasis added)

At p. 4, line 21 – p. 5, line 1, the specification states:

Fig. 4a shows an example of a multi-path profile from the radio channel, **Fig. 4b shows a combined transmitter/receiver filter response**, and **Fig. 4c shows the convolution of the multi-path profile from the radio channel and the combined transmitter/receiver filter response**, which corresponds to the multi-path profile measured by a conventional searcher unit, such as the one shown in Fig. 2; and (emphasis added)

At p. 8, lines 21 – p. 9, line 7, the specification states:

Since it may be reasonably assumed that the receive filtering response of the matched filters 106A and 106B (Fig. 2), or filters that, once implemented, are an approximation of the matched filters 106A, 106B, is approximately known, in accordance with an aspect of this invention **the transmit and receive filtering response can be removed from the multi-path amplitude profile using the deconvolution processing block 206**. As a result, **instead of observing the convolution of the discrete CDMA signal arrivals from the radio channel and a combined transmitter/receiver filter response, the discrete radio channel arrival paths alone can be recovered from the received CDMA signal**.

Fig. 4a shows an example of a multi-path profile from the radio channel, **Fig. 4b shows a combined transmitter/receiver filter response**, and Fig. 4c shows the convolution of the multi-path profile from the radio channel and the combined transmitter/receiver filter response, which corresponds to the multi-path profile measured by a conventional searcher unit, such as the searcher unit 110 shown in

Fig. 2.

The deconvolution searcher 200, in accordance with this invention, produces (approximately) the multi-path profile shown in Fig. 4a, as opposed to the multi-path profile shown in Fig. 4c, **since the "blurring" function of the combined transmitter/receiver filter response of Fig. 4b is essentially removed**. (emphasis added)

At p. 9, lines 13-20, the specification states:

In general, in one hardware embodiment the deconvolution processor block 206 is implemented as an N-tap Finite Impulse Response (FIR) filter 300, shown in Fig. 3B, and in another hardware embodiment shown in Fig. 3C the deconvolution processor block 206 is implemented as an Infinite Impulse Response (IIR) filter 400 (having a number of taps at the numerator and at the denominator). The derivation of the filter taps for either of these embodiments can be performed in a variety of ways. **For example, one may generate an inverse filter of the *a-priori* known convolution of the transmit and receive filter**. (emphasis added)

At p. 10, lines 1-7, the specification states:

For example, the FIR filter 300 is the inverse of the convolution of a model of at least one of, and preferably both of, the base station transmit filter 56 (such as the transmit FIR filter defined in the IS-95 standard) **and the mobile station receiver filters 106A, 106B**. Note that the model of the mobile station 130 receiver filter may actually be the convolution of several filters, partitioned in accordance with the specific architecture of the receiver (e.g., analog baseband filter/digital filter), and may or may or may not include a fixed equalizer. (emphasis added)

At p. 11, lines 29-31, the specification states:

> Thus, in that there can be sidelobes in **the combined response of the transmit and receive filters**, the use of the searcher deconvolution processing block 206 makes it possible for the searcher 200 to pass to the sorting routine only the main radio channel paths. (emphasis added)

At p. 14, lines 5-10, the specification states:

> 1. A method to receive a code division multiple access (CDMA) signal from a radio channel, comprising:
>
> inputting a CDMA signal received through the radio channel to a searcher; and
>
> processing the received signal in the searcher to obtain a multi-path profile of the radio channel, where processing comprises **at least partially removing an effect of at least one of a transmit and a receive filter on the multi-path profile**. (emphasis added)

Based on the above-quoted portions of the specification, it is clear that the exemplary embodiments of the invention enable at least partially removing an effect of at least one of a transmit and a receive filter on the multi-path profile. As a non-limiting example, the FIR filter 300 is the inverse of the convolution of a model of at least one of, and preferably both of, the base station transmit filter 56 and the mobile station receiver filters 106A, 106B.

It is believed that the exemplary embodiments of the invention, including the at least partial removal of an effect of at least one of a transmit and a receive filter, are described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the exemplary embodiments of the invention. It is

requested that the Examiner withdraw the further rejection of claims 1, 2, 8, 9, 11, 32 and 35 under 35 U.S.C. §112, first paragraph.

4. THIRD CLAIM REJECTION

The Examiner rejected claims 21-24, 26-29 and 34-37 under 35 U.S.C. §112, second paragraph. *See pp. 3-4 of the Office Action.* It is believed that the amendments to claims 21, 26 and 34 should address the Examiner's concerns. If they do not or if these amendments are insufficient, it is respectfully requested that the Examiner specify, either via a telephone conference or a further Office Action, the further lack of clarity that is to be addressed or those further amendments that are desired.

5. CONCLUSION

The Examiner is respectfully requested to reconsider and remove the rejections of claims 1, 2, 4-14, 16-23 and 26-41 under 35 U.S.C. §112, and to allow all of the pending claims as now presented for examination. For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly enabled by the specification and would not be construed as vague or indefinite by one of ordinary skill in the art at the time the invention was made. Should any unresolved issue remain, the Examiner is invited to call Applicant's agent at the telephone number indicated below.

Respectfully submitted:

Alan L. Stern

August 13, 2009

Alan L. Stern
Date

Reg. No.: 59,071

Customer No.: 29683

HARRINGTON & SMITH, PC

4 Research Drive

Shelton, CT 06484-6212

Telephone: (203) 925-9400 ext. 18

Facsimile: (203) 944-0245

E-mail: astern@hspatent.com

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Name of Person Making Deposit

8·14·2009
Date